

**Notice of Allowability**

Application No.

09/576,652

Examiner

Raymond S Dean

Applicant(s)

HAGEN ET AL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/12/04.
2. ☒ The allowed claim(s) is/are 1 - 20.
3. ☒ The drawings filed on 11 February 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings filed on February 12, 2004 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

### EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Georgann Grunebach (Registration # 33179) on April 30, 2004.

The application has been amended as follows: **In Claim 11, line 2, the phrase "claim 9" has been replaced with --claim 8, wherein the orbit of each of said plurality of satellites is perturbed such that it appears to move at a constant speed along a circular path as viewed by a single user--.**

***Allowable Subject Matter***

3. The following is an examiner's statement of reasons for allowance: Weinberg teaches a method of transmitting communications signals to a plurality of mobile terminals, comprising: processing a received signal at a ground hub and re-radiating said signal from said at least two satellites to an intended mobile terminal (Figure 2, Column 2 lines 43 – 47, Column 3 lines 58 – 67, Column 4 lines 1 – 8, Column 7 lines 23 – 28, this method is the "bent pipe" method, there are a total of six satellites from which to re-radiate signals from the ground). Hassan teaches radiating a first portion of said signal and a second portion of said signal through multiple paths to at least two satellites and combining the first portion of the signal and the second portion of the signal (Column 3 lines 33 – 55). Leopold teaches an orbit of said satellite that is perturbed in inclination and eccentricity (Figure 4, Column 7 lines 32 – 39, Column 7 lines 46 – 63). **The prior art of record, however, fails to teach an orbit of said satellite that is perturbed in inclination and eccentricity relative to a common geosynchronous reference orbit and whereby the apparent satellite motion of said at least two satellites about the geosynchronous reference orbit remain substantially uniform.** Claim 2 depends on Claim 1, Claim 3 depends on Claim 2, Claim 4 depends on Claim 3, Claims 5 and 6 depend on Claim 4 therefore examiner gives same reason as set forth above.

Leopold teaches a mobile wireless communication system comprising: a satellite constellation consisting of a plurality of satellites (Figure 3) with each of said plurality of

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satellites being capable of relaying signals between the ground hub and the plurality of user terminals in either direction (Column 5 lines 21 – 28, Column 5 lines 39 – 42). **The prior art of record, however, fails to teach each of the plurality of satellites in an orbit that is a perturbed geosynchronous orbit centered about a geosynchronous reference orbit position. The prior art of record also fails to teach a satellite constellation that appears to rotate at a uniform rate above the geosynchronous reference orbit as viewed by a single user so that the apparent inter-satellite spatial relationships are maintained.** Claims 8, 10, 12, and 13 are dependent on Claim 7. Claim 11 depends on Claim 8, and Claim 14 depends on Claim 11 therefore examiner gives same reason as set forth above.

Weinberg teaches a method for establishing a link between a ground hub and a plurality of mobile terminals comprising: preprocessing a received signal at said ground hub (Figure 2, Column 3 lines 58 – 67, Column 4 lines 1 – 8). Hassan teaches transmitting a first portion and a second portion of said signal through different paths to a plurality of satellites in a satellite constellation and combining the first portion of the signal and the second portion of the signal at the mobile terminal to reform the signal (Column 3 lines 33 – 55). Leopold teaches perturbing the inclination and eccentricity of said plurality of satellites (Figure 4, Column 7 lines 32 – 39, Column 7 lines 46 – 63). **The prior art of record, however, fails to teach perturbing the inclination and eccentricity of said plurality of satellites relative to a common geosynchronous reference orbit; and determining a relationship between said inclination and said eccentricity of said plurality of satellites such that they appear to move at a**

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**constant speed along circular paths where centers are located at a position defined by a hypothetical reference satellite in an unperturbed geosynchronous orbit.** Claims 16 – 20 depend on Claim 15 therefore examiner gives same reason as set forth above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

4. The objection to the disclosure on the grounds of informality on page 37 whereas the applicants state that the UHF frequency band is 20 MHz is removed. Examiner agrees with the applicants in that said frequency is the frequency band which is divided into 25 kHz channels

Examiner agrees with the applicants' assessment that the purpose of the perturbed orbits in the Leopold reference is to provide non-adjacent satellites with inter-satellite links to each other. Examiner also agrees that the Leopold reference does not teach a satellite constellation that is in an orbit that is centered about a geosynchronous orbit position so that the satellite constellation appears to rotate at a uniform rate about the geosynchronous reference orbit as viewed by a single user so that the apparent inter-satellite spatial relationships are maintained thus the rejection is withdrawn.

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Examiner agrees with the applicants' assessment that Weinberg does not teach a signal being broken up between multiple paths. Examiner also agrees that the Leopold reference does not teach a plurality of satellites about a common geosynchronous reference orbits where the apparent motion of the satellites about the geosynchronous reference orbit remains substantially constant thus the rejection is withdrawn.

Examiner agrees with the applicants' assessment that neither the Weinberg or Leopold references teach using multiple paths for communication thus the rejection is withdrawn.

Examiner retrieved message on February 9, 2004 pointing out that none of the PTO 1449 forms for the Information Disclosure Statements that had been previously submitted had been returned with the first Office Action with the initials and signature of the Examiner. Examiner initialed and signed PTO 1449 forms dated: March 15, 2001, March 21, 2001, April 3, 2001, and February 4, 2002 which the examiner believes are the same PTO 1449 forms with the dates as stated by the applicants on or about: March 12, 2001, March 16, 2001, March 30, 2001, and December 5, 2001 respectively.

### ***Conclusion***

5. Any inquiry concerning this communication should be directed to Raymond S. Dean at telephone number (703) 305-8998.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung, can be reached at (703) 308-7745. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks


Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology center 2600 only)

Hand –delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
**NAY MAUNG**  
SUPERVISORY PATENT EXAMINER

  
Raymond S. Dean  
4/28/05